



**ISIS<sup>TM</sup>**  
PHARMACEUTICALS

Patent Department \* 1896 Rutherford Rd. \* Carlsbad, CA \* 92008

**Date: January 9, 2008**

Please deliver the following information to:

Name: Examiner McGarry  
Company: United States Patent and Trademark Office  
Fax No.: 571-273-0761  
Re: **Second** Unofficial Fax for Examiners Amendment  
USSN 10/803,482

We are transmitting 2 page(s), including this cover sheet

Comments:

**This is the 2<sup>nd</sup> fax**

This Fax is from

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CC:

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**PATENT****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Docket No.:	058823-0036	Customer No.:	71476
Applicant:	Brett, Monia P.	Confirmation No.:	6288
Serial No.:	10/803,482	Group Art Unit:	1635
Filed:	March 18, 2004	Examiner:	McGarry, Sean
Title:	MODULATION OF DIACYLGLYCEROL ACYLTRANSFERASE 1 EXPRESSION		

**UNOFFICIAL FAX No. 2 FOR EXAMINER'S AMENDMENT**

Dear Examiner McGarry,

Thank you for your phone message. In response to your suggested amendments, please find attached the current set of claims incorporating those changes.

I also included a few claims towards the end that capture our specific compound more narrowly. I noticed we did not have any specific compound picture claims in the current set. No new matter is being added, I am just including narrowing claims to the exact compound of interest.

I thought it may be easier for you to just have the claims that I am suggesting in front of you to look over, rather than trying to explain them over the phone. Please call me at (760) 603-2473 to discuss these claims further. I do not think these claims will present a problem, but please let me know if they do.

To summarize:

Claims 1, 39, 55, 64 and 65 have been currently amended.

Claims 11-14 and 20-22 have been canceled.

Claims 19 and 24-63 have been rejoined.

Claims 67-72 are new.

Please let me know if you have any questions.

Best regards,

Reena R. Desai

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**CURRENT LISTING OF CLAIMS**

1. (Currently amended) A compound 8 to 80 nucleobases in length targeted to at least an 8 nucleobase portion of nucleotides ~~400 to 514~~ 401 to 460 of SEQ ID NO: 4 encoding diacylglycerol acyltransferase 1, wherein said compound is at least 95% complementary to SEQ ID NO: 4.

2. (Original) The compound of claim 1 comprising 12 to 50 nucleobases in length.

3. (Original) The compound of claim 2 comprising 15 to 30 nucleobases in length.

4. (Original) The compound of claim 1 comprising an oligonucleotide.

5. (Original) The compound of claim 4 comprising an antisense oligonucleotide.

6. (Original) The compound of claim 4 comprising a DNA oligonucleotide.

7. (Original) The compound of claim 4 comprising an RNA oligonucleotide.

8. (Original) The compound of claim 4 comprising a chimeric oligonucleotide.

9. (Previously presented) The compound according to claim 8, wherein said chimeric oligonucleotide is 20 nucleotides in length, comprising ten 2'-deoxynucleotides, flanked on each side by five 2'-O-methoxyethyl nucleotides, wherein the internucleoside linkages are phosphorothioate, and all cytidine residues are 5-methylcytidines.

10. (Original) The compound of claim 4 wherein at least a portion of said compound hybridizes with RNA to form an oligonucleotide-RNA duplex.

11. (Canceled) The compound of claim 1 having at least 70% complementarity with a nucleic acid molecule encoding diacylglycerol acyltransferase 1 (SEQ ID NO: 4) said compound specifically hybridizing to and inhibiting the expression of diacylglycerol acyltransferase 1.

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12. (Canceled) The compound of claim 1 having at least 80% complementarity with a nucleic acid molecule encoding diacylglycerol acyltransferase 1 (SEQ ID NO: 4) said compound specifically hybridizing to and inhibiting the expression of diacylglycerol acyltransferase 1.

13. (Canceled) The compound of claim 1 having at least 90% complementarity with a nucleic acid molecule encoding diacylglycerol acyltransferase 1 (SEQ ID NO: 4) said compound specifically hybridizing to and inhibiting the expression of diacylglycerol acyltransferase 1.

14. (Canceled) The compound of claim 1 having at least 95% complementarity with a nucleic acid molecule encoding diacylglycerol acyltransferase 1 (SEQ ID NO: 4) said compound specifically hybridizing to and inhibiting the expression of diacylglycerol acyltransferase 1.

15. (Original) The compound of claim 1 having at least one modified internucleoside linkage, sugar moiety, or nucleobase.

16. (Original) The compound of claim 1 having at least one 2'-O-methoxyethyl sugar moiety.

17. (Original) The compound of claim 1 having at least one phosphorothioate internucleoside linkage.

18. (Original) The compound of claim 1 having at least one 5-methylcytosine.

19. (Rejoined) A method of inhibiting the expression of diacylglycerol acyltransferase 1 in cells or tissues comprising contacting said cells or tissues with the compound of claim 1 so that expression of diacylglycerol acyltransferase 1 is inhibited.

20. (Canceled) A method of screening for a modulator of diacylglycerol acyltransferase 1, the method comprising the steps of: a. contacting a preferred target segment of a nucleic acid molecule encoding diacylglycerol acyltransferase 1 with one or more candidate modulators of

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diacylglycerol acyltransferase 1, and b. identifying one or more modulators of diacylglycerol acyltransferase 1 expression which modulate the expression of diacylglycerol acyltransferase 1.

21. (Canceled) The method of claim 20 wherein the modulator of diacylglycerol acyltransferase 1 expression comprises an oligonucleotide, an antisense oligonucleotide, a DNA oligonucleotide, an RNA oligonucleotide, an RNA oligonucleotide having at least a portion of said RNA oligonucleotide capable of hybridizing with RNA to form an oligonucleotide-RNA duplex, or a chimeric oligonucleotide.

22. (Canceled) A diagnostic method for identifying a disease state comprising identifying the presence of diacylglycerol acyltransferase 1 in a sample using at least one of the primers comprising SEQ ID NOs 5 or 6, or the probe comprising SEQ ID NO: 7.

23. (Original) A kit or assay device comprising the compound of claim 1.

24. (Rejoined) A method of treating an animal having a disease or condition associated with diacylglycerol acyltransferase 1 comprising administering to said animal a therapeutically or prophylactically effective amount of the compound of claim 1 so that expression of diacylglycerol acyltransferase 1 is inhibited.

25. (Rejoined) The method of claim 24 wherein the condition involves abnormal lipid metabolism.

26. (Rejoined) The method of claim 24 wherein the condition involves abnormal cholesterol metabolism.

27. (Rejoined) The method of claim 24 wherein the condition is atherosclerosis.

28. (Rejoined) The method of claim 24 wherein the condition is an abnormal metabolic condition.

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29. (Rejoined) The method of claim 28 wherein the abnormal metabolic condition is hyperlipidemia.

30. (Rejoined) The method of claim 24 wherein the disease is diabetes.

31. (Rejoined) The method of claim 30 wherein the diabetes is Type 2 diabetes.

32. (Rejoined) The method of claim 24 wherein the condition is obesity.

33. (Rejoined) The method of claim 24 wherein the disease is cardiovascular disease.

34. (Rejoined) A method of modulating glucose levels in an animal comprising administering to said animal the compound of claim 1.

35. (Rejoined) The method of claim 34 wherein the animal is a human.

36. (Rejoined) The method of claim 34 wherein the glucose levels are plasma glucose levels.

37. (Rejoined) The method of claim 34 wherein the glucose levels are serum glucose levels.

38. (Rejoined) The method of claim 34 wherein the animal is a diabetic animal.

39. (Rejoined-Currently Amended) A method of ~~preventing or~~ delaying the onset of a disease or condition associated with diacylglycerol acyltransferase 1 in an animal comprising administering to said animal a therapeutically or ~~prophylactically~~ effective amount of the compound of claim 1.

40. (Rejoined) The method of claim 39 wherein the animal is a human.

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41. (Rejoined) The method of claim 39 wherein the condition is an abnormal metabolic condition.

42. (Rejoined) The method of claim 41 wherein the abnormal metabolic condition is hyperlipidemia.

43. (Rejoined) The method of claim 39 wherein the disease is diabetes.

44. (Rejoined) The method of claim 43 wherein the diabetes is Type 2 diabetes.

45. (Rejoined) The method of claim 39 wherein the condition is obesity.

46. (Rejoined) A method of modulating cholesterol levels in an animal comprising administering to said animal the compound of claim 1.

47. (Rejoined) The method of claim 46 wherein the animal is a human.

48. (Rejoined) The method of claim 46 wherein the cholesterol levels are plasma cholesterol levels.

49. (Rejoined) The method of claim 46 wherein the cholesterol levels are serum cholesterol levels.

50. (Rejoined) A method of lowering triglyceride levels in an animal comprising administering to said animal the compound of claim 1.

51. (Rejoined) The method of claim 50 wherein the animal is a human.

52. (Rejoined) The method of claim 50 wherein the triglyceride levels are plasma triglyceride levels.



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53. (Rejoined) The method of claim 50 wherein the triglyceride levels are serum triglyceride levels.

54. (Rejoined) A method of reducing serum glucose levels in an animal comprising contacting said animal with the compound of claim 1.

55. (Rejoined-Currently amended) A method of reducing ~~DGAT1~~ diacylglycerol acyltransferase 1 levels in the liver of an animal comprising contacting said animal with the compound of claim 1.

56. (Rejoined) A method of reducing circulating insulin levels in an animal comprising contacting said animal with the compound of claim 1.

57. (Rejoined) The method according to claim 56, wherein said reduction is sustained over at least 5 weeks.

58. (Rejoined) A method of decreasing fasted serum insulin levels in an animal comprising contacting said animal with the compound of claim 1.

59. (Rejoined) A method of reducing serum glucose levels in an animal comprising contacting said animal with the compound of claim 1.

60. (Rejoined) A method of improving an animal's performance on glucose tolerance tests and insulin tolerance tests comprising contacting said animal with the compound of claim 1.

61. (Rejoined) A method of reducing circulating triglycerides in an animal comprising contacting said animal with the compound of claim 1.

62. (Rejoined) A method of reducing liver triglycerides in an animal comprising contacting said animal with the compound of claim 1.

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63. (Rejoined) A method of reducing free fatty acids in the liver of an animal comprising contacting said animal with the compound of claim 1.

64. (Currently amended) The compound of claim 1 wherein the compound comprises at least an 8 nucleobase portion of SEQ ID NO: 31, 32, or 33 ~~or 34~~.

65. (Currently amended) The compound of claim 1, wherein the compound consists of SEQ ID NO: 31, 32, or 33 ~~or 34~~.

66. (Previously presented) The compound of claim 1 wherein the compound inhibits diacylglycerol acyltransferase 1 expression by at least 60%.

67. (New) The compound of claim 64, wherein the oligonucleotide comprises:  
a gap segment consisting of linked deoxynucleosides;  
a 5' wing segment consisting of linked nucleosides;  
a 3' wing segment consisting of linked nucleosides;  
wherein the gap segment is positioned between the 5' wing segment and the 3' wing segment and wherein each nucleoside of each wing segment comprises a modified sugar.

68. (New) The compound of claim 67, wherein the oligonucleotide comprises:  
a gap segment consisting of ten linked deoxynucleosides;  
a 5' wing segment consisting of five linked nucleosides;  
a 3' wing segment consisting of five linked nucleosides;  
wherein the gap segment is positioned between the 5' wing segment and the 3' wing segment, wherein each nucleoside of each wing segment comprises a 2'-O-methoxyethyl sugar; and wherein each internucleoside linkage is a phosphorothioate linkage.

69. (New) A compound comprising an oligonucleotide consisting of the nucleobase sequence of SEQ ID NO: 33, wherein the oligonucleotide comprises:  
a gap segment consisting of linked deoxynucleosides;  
a 5' wing segment consisting of linked nucleosides;

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a 3' wing segment consisting of linked nucleosides;  
wherein the gap segment is positioned between the 5' wing segment and the 3' wing segment and wherein each nucleoside of each wing segment comprises a modified sugar.

70. (New) The compound of claim 69, wherein the oligonucleotide comprises:  
a gap segment consisting of ten linked deoxynucleosides;  
a 5' wing segment consisting of five linked nucleosides;  
a 3' wing segment consisting of five linked nucleosides;  
wherein the gap segment is positioned between the 5' wing segment and the 3' wing segment, wherein each nucleoside of each wing segment comprises a 2'-O-methoxyethyl sugar; and wherein each internucleoside linkage is a phosphorothioate linkage.

71. (New) A composition comprising an oligonucleotide consisting of 8 to 80 linked nucleosides and having a nucleobase sequence comprising at least 8 contiguous nucleobases of the nucleobase sequence recited in SEQ ID NO: 33 or a salt thereof and a pharmaceutically acceptable carrier or diluent.

72. (New) A method of inhibiting the expression of diacylglycerol acyltransferase 1 in a human comprising administering to said human the composition of claim 69.